AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1.(Currently Amended) A mask illumination method, comprising:

illuminating a lithographic mask with ~~a source of~~ light from different directions such that intensities of a plurality of incident beams of light provide a largest possible integrated process window defined in terms of an allowed range for defining shapes, comprising

imposing, through application of at least one set of constraints, a first set of intensity parameters for representing maximum possible intensities that can be permitted for overexposed tolerance positions and a second set of intensity parameters for representing minimum possible intensities that can be permitted for underexposed tolerance positions;

~~defining, for each of a plurality of different focal ranges, at least one parameter for each of the first set and the second set;~~ and,

determining optimum source intensities of incident beams using a linear program and constraints that comprise at least said one set of constraints, where the determined optimum source intensities maximize an integrated range of at least one of dose variations and focal variations without causing printed shapes to depart from the allowed range.

2.(Original) A method as in claim 1, where boundaries of the process window impose shape limits corresponding to at least one of underexposed and overexposed conditions.

3-7.(Canceled)

8.(Currently Amended) A system for illuminating a mask, comprising

means for illuminating a photolithographic mask with light from different directions such that intensities of a plurality of incident beams provide a largest possible integrated process window defined in terms of an allowed range for defining shapes, said illuminating means comprising means for imposing, through application of at least one set of constraints, a first set of intensity parameters for representing maximum possible intensities that can be permitted for overexposed tolerance positions and a second set of intensity parameters for

representing minimum possible intensities that can be permitted for underexposed tolerance positions;

~~means for defining, for each of a plurality of different focal ranges, at least one parameter for each of the first set and the second set;~~ and

means for determining optimum source intensities of incident beams from the means for illuminating using a linear program and constraints that comprise at least said one set of constraints, where the determined optimum source intensities maximize an integrated range of ~~tolerable~~ at least one of dose variations and focal variations without causing printed shapes to depart from the allowed range.

9.(Original) A system as in claim 8, where boundaries of the process window impose shape limits corresponding to at least one of underexposed and overexposed conditions.

10.(Original) A system as in claim 8, where the mask is used to project patterns onto a wafer.

11-21.(Canceled)

22.(New) The method of claim 1, further comprising, prior to determining, defining for each of a plurality of different focal ranges at least one parameter for each of the first set and the second set,

and wherein the determined optimum source intensities maximize an integrated range of dose and focal variations without causing printed shapes to depart from the allowed range.

23.(New) The system of claim 8, further comprising:

means for defining, for each of a plurality of different focal ranges, at least one parameter for each of the first set and the second set;

and wherein the determined optimum source intensities maximize an integrated range of dose and focal variations without causing printed shapes to depart from the allowed range.